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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF : EXAMINER: DOTE, J. L.

SATOSHI MOCHIZUKI, ET AL. :

SERIAL NO: 10/615,770 : GROUP ART UNIT: 1756

FILED: JULY 10, 2003 :

FOR: DEVELOPER FOR DEVELOPING ELECTROSTATIC IMAGE, IMAGE FORMING APPARATUS AND IMAGE FORMING METHOD

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

Sir:

I, Satoshi Mochizuki, declare and state as follows:

1. I am a named coinventor in the above-identified application.

2. I am familiar with the claims, and have read the Office Action mailed July 20, 2006, in the above-identified application.

3. The following experiments were conducted under my supervision and/or control.

4. Four examples of inorganic fine particles were prepared, labeled as Comparison Example A, Comparison Example C, Embodiment A, and Comparison Example B, as follows:

Comparison Example A:

Analogously to the preparation of inorganic fine particle 3, as described in the specification of the above-identified application beginning at page 102, line 15, methyl-tri-methoxy-silane, refined by distillation, was heated, nitrogen gas was bubbled there, the methyl-tri-methoxy-silane was introduced into an oxyhydrogen fire burner with airflow wake

of nitrogen gas, also pure water was provided from a spray nozzle, and combustion decomposition was made to occur in the oxyhydrogen fire. At this time, the methyl-tri-methoxy-silane flow rate was 1268 g/hr, oxygen gas flow rate was 2.8 Nm^3/hr, hydrogen gas flow rate was 2.0 Nm^3/hr, nitrogen gas flow rate was 0.59 Nm3/hr, and pure water flow rate was 5.6 g/hr. The particle reception heat amount of the spherical silica fine particles was 1.28 kcal/g. To the thus-obtained spherical silica fine particles, hexa-methyl-silazane was provided at a flow rate of 11.2 g/hr from a spray nozzle, and a bug filter was used for collection. The temperature of hexa-methyl-silazane at a portion of introduction was 320°C. The thus-obtained silica fine particles had an average particle diameter of 170 nm, and an average roundness of 0.945.

Comparison Example C:

Comparison Example C was prepared identically to Comparison Example A, except that the temperature of hexa-methyl-silazane was 285°C at the portion of introduction. The thus-obtained silica fine particles had an average particle diameter of 155 nm, and an average roundness of 0.965.

Embodiment A:

Analogously to the preparation of Inorganic fine particle 4, as described in the specification of the above-identified application beginning at page 103, line 10, step (1) was carried out, except that 900 g of water were added when 1122 g of methanol were discarded after the ester adapter and a cooling tube were mounted to the glass reaction vessel, and 283 g of methanol were discarded after heating was performed under 70-90°C , and then steps (2) and (3) were carried out, resulting in 470 g of spherical hydrophobic silica fine particles having an average particle diameter of 130 nm, and an average roundness of 0.980 was obtained.

Comparison Example B:

Comparison Example B was prepared identically to Embodiment A, except that 2000 g of water were added when 1129 g of methanol were discarded after the ester adapter and a cooling tube were mounted to the glass reaction vessel, and 275 g of methanol were discarded after heating was performed under 70-90°C , resulting in 473 g of spherical hydrophobic silica fine particles having an average particle diameter of 115 nm, and an average roundness of 0.998 was obtained.

5. Toners were prepared, identically to Embodiments 6 and 7, as described in the specification of the above-identified application, except that the inorganic fine particles prepared according to the above-discussed Comparison Examples and Embodiment A were used as the inorganic fine particle component.

6. The Comparison Examples and Embodiment A were evaluated for the same properties that Embodiments 6 and 7 were evaluated for, as shown in the table at page 115 of the specification of the above-identified application. The data for the Comparison Examples and Embodiment A, together with corresponding data for Embodiments 6 and 7, are shown in the Comparison Table attached herewith.

7. As can be seen from the Comparison Table, it is clear that the range of the degree of roundness greater than or equal to 0.975 and less than or equal to 0.990, corresponding to Embodiment 6, Embodiment A and the Embodiment 7 of the Comparison Table, is critically advantageous.

8. In fact, as shown in the Comparison Table, as to Comparison Examples A and C, since the average degree of roundness is smaller than the above-discussed range, the toner flowability degrades, and thus, creation of blanks occurs.

9. As to Comparison Example B, since the average degree of roundness is larger than the above-discussed range, inorganic fine particles cannot be held on the toner, the inorganic

fine particles are thus removed therefrom, adherence between the toner and a photosensitive body thus increases, and thus, the toner transfer rate remarkably degrades. Further, the toner electricity charging amount lowers, and thus, background stain occurs.

10. The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

11. Further declarant saith not.

Satoshi Mochizuki

Signature Satoshi Mochizuki

December 6, 2006

Date

Customer Number
22850
Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 05/06)

COMPARISON TABLE

	Average Roundness	Cleaning Property	Burial of Additive	Creation of Blanks	Toner Transfer Rate	Transfer Dust	Background Stain	Fixability
Comparison Example A	0.945	○	Δ	×	Δ	○	×	◎
Comparison Example C	0.965	○	Δ	×	Δ	○	Δ	◎
Embodiment 6	0.975	○	○	Δ	○	◎	◎	◎
Embodiment	0.980	○	○	○	○	○	◎	◎
Embodiment 7	0.990	○	○	○	○	○	◎	◎
Comparison Example B	0.998	○	Δ	◎	×	○	×	◎